

What is claimed is:

1. A solid light pipe arrangement with reduced Fresnel-reflection losses, comprising:
 - a) a light pipe with a solid core comprising a polymer; and
 - b) an optically clear substrate having first and second sides with an anti-reflective coating
5 on at least one side;
 - c) the substrate being adhered to an end-face of the core of the light pipe by adhesive material so as to create an optically clear interface between the substrate and the end-face that passes more than about 96 percent of transmitted light.
2. The arrangement of Claim 1, wherein the substrate fully covers the end-face of the core.
- 10 3. The arrangement of Claim 1, wherein the composition of the adhesive material is chosen to create an optically clear interface between the substrate and the end-face that passes more than about 99 percent of transmitted light
4. The arrangement of Claim 1, wherein the adhesive material is a cyanoacrylate-based adhesive.
- 15 5. The arrangement of Claim 1, wherein the adhesive material comprises a polymer-based plastic.
6. The arrangement of Claim 1, wherein the adhesive material is a polymer.
7. The arrangement of Claim 6, wherein the adhesive material is an uncrosslinked polymer.
8. The arrangement of Claim 7, wherein the polymer of the adhesive material is a thermoset
20 polymer.
9. The arrangement of Claim 6, wherein the polymer of the adhesive material is an uncrosslinked, crosslinkable polymer.
10. The arrangement of Claim 9, wherein the polymer of the adhesive material is a thermoset polymer.
- 25 11. The arrangement of Claim 6, wherein the polymer of the adhesive material is a crosslinked polymer.
12. The arrangement of Claim 11, wherein the polymer of the adhesive material is a thermoset polymer.
13. The arrangement of Claim 7, 8, 9, 10, 11, or 12, wherein the polymer of the adhesive
30 material is the same type as the polymer of the core.

14. The arrangement of Claim 7, 8, 9, 10, 11, or 12, wherein the adhesive material is made of the same polymeric components as the polymer of the light pipe core.
15. The arrangement of Claim 14, wherein the polymeric components of the adhesive material have the same proportions as in the light pipe core.
- 5 16. The arrangement of Claim 1, wherein the substrate comprises a polymer.
17. The arrangement of Claim 16, wherein the polymer of the substrate is an uncrosslinked polymer.
18. The arrangement of Claim 17, wherein the polymer of the substrate is a thermoset polymer.
19. The arrangement of Claim 16, wherein the polymer of the substrate is an uncrosslinked,
10 crosslinkable polymer.
20. The arrangement of Claim 19, wherein the polymer of the substrate is a thermoset polymer.
21. The arrangement of Claim 16, wherein the polymer of the substrate is a crosslinked polymer
22. The arrangement of Claim 21, wherein the polymer of the substrate is a thermoset polymer.
23. The arrangement of Claim 17, 18, 19, 20, 21, or 22, wherein the polymer of the substrate is
15 the same type of polymer as the polymer of the light pipe core.
24. The arrangement of Claim 17, 18, 19, 20, 21, or 22, wherein the substrate is made of the same polymeric components as the polymer of the light pipe core.
25. The arrangement of Claim 24, wherein the polymeric components of the substrate have the same proportions as in the light pipe core.
- 20 26. The arrangement of Claim 1, wherein both the adhesive material and the substrate both comprise polymeric material.
27. The arrangement of Claim 26, wherein the polymeric material of the adhesive material is of the same type as the polymeric material of the substrate.
28. The arrangement of Claim 27, wherein the polymeric material of the adhesive material is
25 made of the same polymeric components as the substrate.
29. The arrangement of Claim 28, wherein the polymeric material of the substrate is also made of the same polymeric components as the light pipe core.
30. The arrangement of Claim 28, wherein the polymeric components of the adhesive material have the same proportions as in the substrate.

31. The arrangement of Claim 30, wherein the polymeric components of the adhesive material also have the same proportions as in the light pipe core.
32. The arrangement of Claim 1, wherein the substrate is a plastic film or sheet.
33. The arrangement of Claim 32, wherein the plastic film or sheet is MYLAR polyester.
- 5 34. The arrangement of Claim 32, wherein the plastic film or sheet is polycarbonate.
35. The arrangement of Claim 1, wherein the substrate is glass or quartz.
36. A method of applying an anti-reflective coating to an end-face of a core of a solid, polymeric light pipe, comprising:
- 10 a) diverting uncrosslinked polymer used for forming a light pipe core, which polymer is fully polymerized and contains the necessary ingredients to form a light pipe core; and
- b) applying the uncrosslinked polymer as adhesive material between a substrate coated with at least one anti-reflective coating and an end-face of a core of a solid, polymeric light pipe having the same polymeric components, in the same proportions, as the diverted polymer.
- 15 37. The method of Claim 36, wherein the polymer comprises at least one component from C₁-C₁₈ alkyl methacrylates.
38. The method of Claim 36, wherein the diverted polymer is produced in the same batch as the solid, polymeric light pipe whose end-face receives the adhesive material.
39. The method of Claim 36, wherein the uncrosslinked polymer is crosslinkable.
- 20 40. The method of Claim 39, further comprising crosslinking the adhesive polymer.
41. The method of Claim 36, 39 or 40, wherein the polymer of the adhesive material is a thermoset polymer.
42. The method of Claim 36, wherein the substrate comprises a polymer.
43. The arrangement of Claim 42, wherein the polymer of the substrate is an uncrosslinked polymer.
- 25 44. The arrangement of Claim 43, wherein the polymer of the substrate is a thermoset polymer.
45. The arrangement of Claim 42, wherein the polymer of the substrate is an uncrosslinked, crosslinkable polymer.
46. The arrangement of Claim 45, wherein the polymer of the substrate is a thermoset polymer.

47. The arrangement of Claim 42, wherein the polymer of the substrate is a crosslinked polymer
48. The arrangement of Claim 47, wherein the polymer of the substrate is a thermoset polymer.
49. The arrangement of Claim 43, 44, 45, 46, 47, or 48, wherein the polymer of the substrate is the same type of polymer as the polymer of the light pipe core.
- 5 50. The arrangement of Claim 43, 44, 45, 46, 47, or 48, wherein the substrate is made of the same polymeric components as the polymer of the light pipe core.
51. The arrangement of Claim 50, wherein the polymeric components of the substrate have the same proportions as in the light pipe core.